Flight, May [illegible], [illegible]

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. [illegible] (No. [illegible]) Vol. [illegible]] [illegible] [Registered at the G.P.O. as a Newspaper.] [Weekly, Price 1d. Post Free 1½d.]

Mr. D. [illegible]

B 2

THE MARATHON OF THE AIR.

Up to the present moment no [illegible] has been made of the conditions under which the second of the magnificent [illegible] prizes offered by the *Daily Mail* is to be competed for. [illegible] which can be settled off hand, because, if the prize is to [illegible] the object for which it has been offered, it is evident that there are many points to be taken into consideration before the details [illegible] the [illegible] the laying down of precise conditions. When the [illegible] the £[illegible] prize was [illegible] small things had been achieved [illegible] out of all knowledge before the prize could be won, [illegible] direction.

[illegible] its equivalent in distance [illegible] [illegible] been [illegible] [illegible] today and hence [illegible] difficult [illegible] [illegible] pound prize.

[illegible] and back, [illegible] doubtless being [illegible] *Daily Mail* [illegible] when the prize was [illegible] course [illegible] the very [illegible] that something [illegible] satisfactory to everyone [illegible] prize not falling [illegible] who only [illegible]

[illegible] possible [illegible] others who have [illegible] sporting [illegible] and a highly [illegible] spectacle—a [illegible]

[illegible] Paulhan and [illegible] between London and [illegible] in the following [illegible] —

(*a*) that it is practical, and [illegible] to make a long distance [illegible] flight [illegible] duration [illegible] two [illegible] and (*d*) that the [illegible] of the aviator [illegible] his machine [illegible] can be, so far as [illegible] and [illegible] expected. That is true [illegible] the [illegible] endurance [illegible] any distance within reason.

[illegible] flying public. [illegible] the purposes of either peace or war [illegible] atmosphere. A machine which can [illegible]

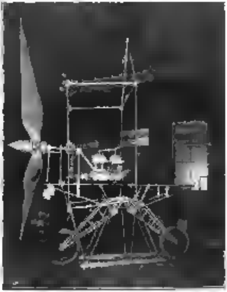
[illegible] and [illegible] equally [illegible] changes [illegible] ending. [illegible] popular [illegible] enthusiasts [illegible] might [illegible] prolonged [illegible] distances [illegible] conquered— [illegible] public interest [illegible] London [illegible] Manchester [illegible] that man and machine are perfect [illegible] [illegible] and even the [illegible] three, [illegible] flying men [illegible] succeed in making the [illegible] simply be seething with [illegible] and speculation [illegible] ground.

THE PIGGOTT BROS. BIPLANE.

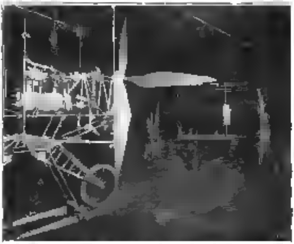
A very British built biplane, the trials of which are shortly to take place and should be watched with extreme interest, has been [illegible] the well-known [illegible] Messrs. Piggott Bros. and Co., Ltd., of Bishopsgate Street, to the designs of their engineer, Mr. S. C. Parr. The machine is in every way [illegible] but to use [illegible] of [illegible] good size, [illegible] has a span of [illegible] and is [illegible] designed for carrying [illegible] passengers in addition to the pilot. From the point of view of design, the machine is also exceedingly interesting, because Mr. Parr has embodied a very great deal of what may be described as Lanchesterian theory. Those who have studied Mr. F. W. Lanchester's works on Aerial Flight will recognise certain characteristics in the general form of the aerofoil surfaces, and in other details, and it is possible to discuss the design from Lanchester's standpoint. This last point is one that we regard as being very important, and the designer is to be congratulated on having taken the trouble [illegible] commencement to make [illegible] and to build up [illegible]. We do not wish to imply that the design is in any way due to Lanchester, who possibly would disagree with much that is [illegible].

From a constructional point of view the machine is full of interesting details, and [illegible] the [illegible] the leading features that are [illegible] the [illegible] propeller, [illegible] and the [illegible] new method of [illegible].

The accompanying illustrations are [illegible] taken under difficult [illegible]

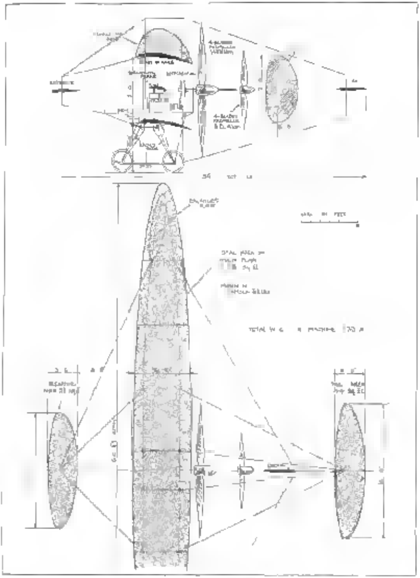


[illegible] of the Piggott biplane [illegible] principal dimensions, of the engine and [illegible] arranged [illegible].



A general view of [illegible] the Piggott biplane [illegible] being [illegible].

[illegible] publication of [illegible] only one of any [illegible] part [illegible] machine [illegible] biplane [illegible]



THE PIGGOTT BIPLANE. Plan and side elevation to scale.

Detail view of the chassis of the Piggott biplane, showing the multiple disc clutch between the crank shaft and the chain sprocket, and the differential gear between the chain wheel and the propeller shafts.

eight being elliptical curves, being drawn to different [illegible] [illegible]. [illegible] the [illegible] stabilising rudder also similarly shaped. At the extremities of the main planes there [illegible] the form of vertical wings are [illegible] the ship [illegible] balancing planes for controlling lateral equilibrium.

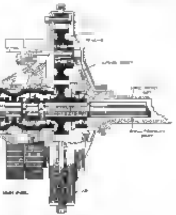
The main planes and supplementary surfaces are all supported upon a central [illegible] for the most part constructed of aluminium. This framework carries the engine and [illegible] is supported upon the ground by a [illegible] wire wheels that are [illegible] by a peculiar [illegible] arrangement of dashpots [illegible]. The resiliency of the suspension is obtained from a set of helical springs interposed between the upper ends of the axle levers and the frame.

One of the most interesting features of the whole design is the propelling mechanism. There are, as our illustrations show, two propellers in tandem; both are very large but differ in diameter and in pitch. The larger of the two has a diameter of [illegible] ft. [illegible] ins., the smaller has a diameter of [illegible] ft. [illegible] in.

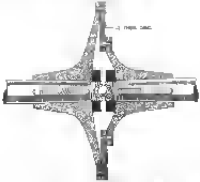
The propellers are driven by chain transmission from the engine through a differential gear that ensures each propeller taking up its full load. The arrangement of this differential gear is illustrated by a sectional drawing. The chain wheel, which is driven by the engine [illegible] clutch, is bolted to the casing of the mechanism, which carries a toothed annulus. This latter element engages with a set of planet pinions carried by a three-armed spider that is coupled up to the [illegible] shaft on which the larger of the two propellers is mounted.

The planet pinions [illegible] mounted direct upon the shaft that [illegible] drives the smaller of the two propellers. It will be observed that neither propeller is directly [illegible] and it will therefore be observed that the tendency [illegible] propeller [illegible] the three-armed spider [illegible] held stationary. That is to say, the propellers [illegible] directions.

In order that the large propeller may rotate it was necessary that [illegible] and spider should [illegible] round the [illegible]



Sectional drawing of the differential gear on the Piggott biplane.



Sectional sketch of the double casting of the propeller shaft of the Piggott biplane.

[illegible] propeller than on the larger, the smaller propeller will [illegible] than [illegible] the [illegible] will and [illegible] [illegible] or [illegible] the other hand [illegible] the smaller propeller [illegible] the [illegible] [illegible] walk round [illegible] [illegible] happens, therefore [illegible]

Sketch of one of the ribs in the main plane of the [illegible] biplane.

[illegible] and another and comes purely a simple observation of their relative speeds in practice, [illegible] whether they are operating an [illegible] [illegible]

Blade of the propellers [illegible] sheet aluminium [illegible] hollow [illegible] has been made [illegible] shape [illegible] a slight camber to the [illegible] the [illegible] experiments [illegible] [illegible]

[illegible] propellers [illegible] [illegible] [illegible] The biplane [illegible] [illegible] [illegible] The [illegible] [illegible] is [illegible] [illegible] in motion [illegible] [illegible] problem.

[illegible] proportioned [illegible] having the [illegible] engine [illegible] [illegible] [illegible] diameter [illegible] 55 [illegible]

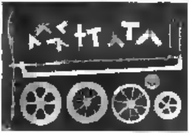
The [illegible] propeller [illegible] [illegible] [illegible] [illegible] the [illegible] pitch [illegible] The smaller propeller [illegible] large propeller [illegible] [illegible] The efficient [illegible] [illegible] comparison with large [illegible]

⁂

The leading machines at the Lyons Aviation Meeting [illegible] Farman, [illegible] [illegible] biplane, [illegible] [illegible] on his Sommer biplane.

SOME MODEL ACCESSORIES AND WHERE TO OBTAIN THEM

Aeroplane Supply Co. h[illegible] T[illegible] [illegible]



[illegible] [illegible] aeroplane [illegible] ready.

A very fine [illegible] of [illegible] [illegible]

[illegible] [illegible] literary [illegible]

They also stock the manufac[illegible] [illegible] model [illegible]

T. W. K. Clarke and Co. [illegible] [illegible] complete [illegible]

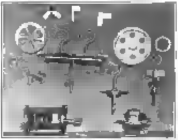
[illegible] W. K. Clarke and Co. The propellers shown [illegible] [illegible] wood from the [illegible] propellers made by this firm.

[illegible]

A [illegible] models [illegible] propeller, available [illegible] by T. W. K. Clarke and Co.

[illegible] Ball bearings are [illegible] made [illegible] [illegible] a long [illegible] steel propellers [illegible]

William Lorimer and Co., Moss Cochrane and Co. have [illegible] [illegible] small [illegible]



[illegible]

Chas. E. Thilpsting. [illegible]

[illegible] Gnome. A [illegible] propeller [illegible]

The [illegible] by W. Code [illegible] and Co. [illegible] Aero[illegible] plane Co. This firm makes up parcels of materials [illegible] many different [illegible] of model aeroplanes. [illegible] propellers, finished planes [illegible] models are [illegible] extensively supplied by [illegible]

Hamle and Samuels (Equerm's Patents).—A fine selection [illegible] for model aeroplanes, such as [illegible] [illegible] and [illegible] [illegible] [illegible] from [illegible] [illegible] model [illegible] propellers made by the [illegible]

BRITISH FLIGHT ENGINES.

THE 45-H.P. DE HAVILLAND.

In view of the rapidly increasing demand [illegible] high engines [illegible] for use upon flying machines [illegible] must be extended [illegible] genuine attempt [illegible]

Fig. 1.—In Mr. de Havilland's engine the four horizontal opposed cylinders are held in place by [illegible] bolts fitted with triangular yokes, and the cylinder jackets for the cooling water are [illegible] by short lengths of copper tubes.

made by [illegible] Mr. [illegible] de Havilland [illegible] combustion engine [illegible] [illegible]

[illegible] reducing the number of parts and in cutting down [illegible] wherever possible, while now [illegible] engines has been [illegible] already [illegible]

The [illegible] photographs enable us to show [illegible] from three different points of view, [illegible] drawings [illegible] further [illegible] details which can only be [illegible] by sectional elevation. [illegible] with very [illegible] cylinders are held horizontally [illegible] the sides of the centrally-placed [illegible] chamber [illegible] connecting yokes. The [illegible] of the cylinders [illegible] the triangular yoke which [illegible] against the cylinder head [illegible] cylinder head [illegible]

[illegible] exhaust [illegible] the advantage of [illegible] proper around [illegible] by a copper tube, which [illegible] by means of flanges bearing up against the [illegible] head engine is [illegible] by a [illegible] being [illegible]

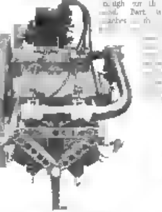


Fig. 2.—Each inlet valve constitutes an inspection-cover for each exhaust-valve, the former being held down by a couple of [illegible] and all the valves being operated by a single cam-shaft fixed in the upper part of the crank chamber.

Fig. 3.—A high-tension magneto fixed above the cam shaft and driven from it by spur-gearing feeds the four ignition plugs that pass direct into the combustion-chambers between the inlet and exhaust-valves. The above photograph also shows the construction of the large light fly-wheel, with its [illegible] and flat dome.

because the arrangement [illegible] has been [illegible] by more than one [illegible] of automobiles [illegible] In fact, the [illegible] of the [illegible] has chiefly had to be [illegible]

It will readily be observed from our drawings how the [illegible] from the cam-shaft [illegible] between the two cylinders and engage with [illegible]-levers carried beneath. The bell crank-levers themselves are supported on rock-pins projecting from the lower long bolt which holds the cylinders in place, this bolt being of special square section and of additional strength to withstand the strain. All the rods [illegible] working the valves are hollow [illegible] the sake of lightness, and similarly the gear wheels, including the idle intermediate wheel, which drive the cam-shaft are lightened as much as is consistent with strength.

Incidentally, too, it may be mentioned that the float [illegible] made of cork treated with celluloid.

All the bearings on the crank-shaft are of the well-known Hoffmann ball type, these being used not only for the two main end bearings but also for the big-ends of the connecting-rods. Two rows of balls are used for each big-end, and in order to get these in place, the crank-shaft is made with a separate intermediate piece between the two opposed cranks [illegible] using a cone [illegible] balls [illegible] bearings, and there are [illegible] pure places on the crank-shaft [illegible] crank-shaft can be [illegible] at any time it is desired [illegible] remove it.

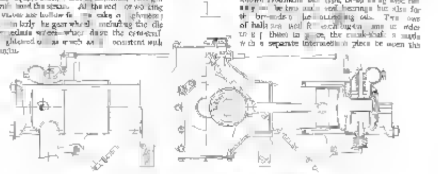


Fig. 4.—The position and arrangement of the valves, of the copper cylinder-jackets, of the pistons, and of the valve-operating gear with the cam-shaft are clearly demonstrated in this end elevation drawing.

Each pair of inlet-valves is fed by a single pipe of large size from the centrally placed carburettor, the pipe being merely clamped in place [illegible] the castings which serve to hold each inlet-valve in place. A couple of stud-screws [illegible] to draw these castings down on the [illegible] and the idle bell-crank levers [illegible] operate the valves are fastened to the castings themselves. Where the induction-pipe passes through the [illegible]

[illegible] great confidence is placed upon the [illegible] which Mr. de Havilland has had with the use of Hoffmann ball-bearings on the crank-shafts of [illegible] motor engines [illegible] used [illegible] merely [illegible] for [illegible] types

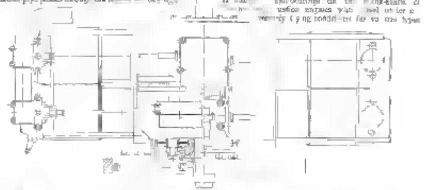


Fig. 5.—In the above plan view may be seen the arrangement of the cam-shaft, of its idle intermediate wheel, of the large Hoffmann end ball-bearings, and of the built-up fly-wheel, which last-mentioned, however, has two discs instead of one, as shown in the drawing.

[illegible] the cylinders and [illegible] a free open passage from the carburettor direct to each valve.

For convenience in dismantling, the carburettor with its throttle [illegible] held in place against the [illegible] chamber by a single nut, while similarly the float-feed chamber is held up against the carburettor proper by one bolt only, thus facilitating ready inspection of the jets.

[illegible] work [illegible] large [illegible] in this particular way, and we need hardly remark that they very greatly simplify the question of lubricating [illegible] it is [illegible] only necessary in this engine to see that the four pistons with their gudgeon-pins receive a proper supply of oil. These pistons, by the way, are [illegible] in a special manner, each one being made in two parts. Our sectional elevation does and show the latest arrangement that has been adopted, though in outlining roughly the general principle employed. The back portion which carries the rings, is stamped from the solid out of vanadium steel, and being machined accurately inside and out, a uniform thickness can be ensured; while the front portion is a steel casting through which, as well as through the back portion, the gudgeon-pin is fixed [illegible].

It will of course be realised that the opposing cylinders are fixed rigidly not in line with one another, and also that the connecting-rods are [illegible] in centre with [illegible] the big ends. In this way, very little overhang is caused to exist, and the connecting-rods are rendered [illegible] of each other upon each crank-shaft.

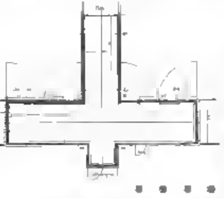
The engines [illegible] a bore of [illegible] by a stroke of [illegible] [illegible] output [illegible] about 40 to 45 b.h.p. [illegible] and it develops one horse-power for each 5½ lbs. of total weight. The total weight [illegible] as shown in our photograph [illegible], without its exhaust pipes or its complete water connections, but complete with its fly-wheel, magneto, and all the other parts [illegible] represents the relatively large fly-wheel, which is built up with a steel rim and two ¼-inch steel discs.

This first engine has recently undergone its initial bench tests at the Willesden works of the Iris Motor Co. (Messrs. Legros and Knowles), where it has been built for Mr. de Havilland. Our photographs were, in fact, taken immediately after these first tests had been conducted, and when it had proved that it had a considerable future in store for useful work. Sufficient has already been said to indicate its main characteristics in all respects, but in conclusion we might remark that certain of the details to which we have not specifically referred [illegible] may be seen in the photographs and drawings.

◆ ◆ ◆ ◆

AN AEROPLANE SHED THAT FITS THE MACHINE.

[illegible]



Plan, front and side elevations of [illegible] shed.

[illegible] The [illegible] is designed to fit the machine. [illegible] illustrated [illegible] but has a [illegible]. A [illegible] feature of the design is that the [illegible] portion of the building, which covers the [illegible] and the machine [illegible] then enters [illegible] for opening the folding doors [illegible] the [illegible] building and [illegible] pair of large doors [illegible] from the [illegible]

• • • •

CRANK-SHAFTS FOR PETROL ENGINES

In [illegible] of high [illegible] engines [illegible] hand, whether for automobile work or for the propulsion of aerial craft, are [illegible] in regarding the crank-shaft as being the most important single component part of any engine. [illegible] amount of general interest therefore attaches to the latest [illegible]. The [illegible] copy has been sent us by Messrs. [illegible] of Birmingham, for these [illegible] full particulars of all the various types of crank-shaft, the constituents of which [illegible]. The [illegible] of the highest grade [illegible] such as [illegible] from [illegible] can be obtained from them [illegible] forgings or in finished form, and [illegible] full equipment of up-to-date machine tools has [illegible] of crank-shaft work. All and every [illegible] for 2-cylinder engines [illegible] turned out [illegible] hollow shafts for light engines have been added to the standard models.

CONTINENTAL AVIATION MEETINGS.

The Lyons Meeting.

Last week we were able to chronicle the progress of [illegible] up to Tuesday, when all had gone smoothly. [illegible] last days of the meeting [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Legagneux and Van den Born [illegible] [illegible] [illegible] [illegible] Latham was [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] The [illegible] [illegible] [illegible] [illegible] [illegible] On Tuesday the weather [illegible] [illegible] [illegible] [illegible] The [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] best performances of the [illegible] [illegible] Chavez [illegible] Paulhan [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Paulhan [illegible] [illegible] [illegible] [illegible] three hours after the accident. Both Latham and Legagneux were unfortunate [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Van den Born [illegible] the best performances [illegible] [illegible] [illegible] Van den Born, Chavez, Paulhan and Molon [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Legagneux [illegible] [illegible] [illegible] in the height [illegible] Paulhan [illegible] [illegible] [illegible] Chavez [illegible] [illegible] [illegible] [illegible] [illegible]

Total Duration of Flights.	h. m. s.
Van den Born (H. Farman)	[illegible]
2. Legagneux (Sommer)	[illegible]
3. Chavez (H. Farman)	[illegible]
4. [illegible] (H. Farman)	[illegible]
5. Latham (Antoinette)	[illegible]
6. Molon (Blériot)	[illegible]
7. Métrot (Voisin)	[illegible]

Speed Prize (20 kilometres).	
1. Paulhan (H. Farman)	[illegible]
2. Van den Born (H. Farman)	[illegible]
3. Chavez (H. Farman)	[illegible]

Aerodrome Circuit Prize.	
Latham (Antoinette)	[illegible]
Van den Born (H. Farman)	[illegible]

Grand Prize for Distance.	
Van den Born (H. Farman), [illegible]	[illegible]
2. Legagneux (Sommer), [illegible]	[illegible]
3. Chavez (H. Farman), [illegible]	[illegible]

Passenger Prize.	
1. Paulhan (H. Farman), [illegible]	[illegible]
2. Legagneux (Sommer), [illegible]	[illegible]

Height Prize.	
Paulhan (H. Farman)	[illegible] metres
2. Chavez (H. Farman)	[illegible]
3. Latham (Antoinette)	[illegible]

Speed Prize (6 circuits).	h. m. s.
1. Paulhan (H. Farman)	[illegible]
2. Latham (Antoinette)	[illegible]

Starting Prize.	
Paulhan (H. Farman)	[illegible] metres
2. Latham (Antoinette)	[illegible]

Prize for Heaviest Weight Carried.	
1. Paulhan (H. Farman)	[illegible] kilogs.

St. Petersburg Meeting.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] for the height [illegible] Christiaens' Farman [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] The results of the meeting were:—

Total Duration of Flights.	h. m. s.
Christiaens (H. Farman)	[illegible]
2. Morane (Blériot)	[illegible]
3. Popoff (Wright)	[illegible]
Edmond (H. Farman)	[illegible]
5. Winziers (Antoinette)	[illegible]
6. Mme. de la Roche (Voisin)	[illegible]

Speed Prize.	
Christiaens (H. Farman)	[illegible]
2. [illegible] (H. Farman)	[illegible]

Height Prize.	
Morane (Blériot)	[illegible] metres

Unofficial Flights.	
Popoff (Wright)	[illegible]
2. Morane (Blériot)	[illegible]
3. Christiaens (H. Farman)	[illegible]

Consolation Prize.	
Christiaens (H. Farman)	[illegible]

Further Flying in St. Petersburg.

Although the meeting officially closed on Sunday, there was a good deal of [illegible] on Monday. During that day [illegible] Minister of War [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

The Berlin Meeting.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Engelhardt [illegible] [illegible] [illegible] [illegible] [illegible] Wright [illegible] [illegible] [illegible] On Wednesday no flying was possible [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Captain Engelhardt [illegible] a passenger [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Friday [illegible] [illegible] [illegible] [illegible] Engelhardt and [illegible] Jeannin for the endurance prize. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Captain Engelhardt [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Jeannin, after flying [illegible] [illegible] [illegible]

[illegible]

[illegible]

◆ ◆ ◆ ◆

BOOK REVIEWS

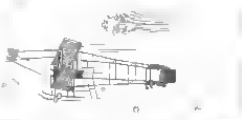
"The [illegible]"

[illegible]

Flying Machines: Practice and Design

[illegible]

[illegible]



HALLEY'S COMET. [illegible] the third [illegible] but [illegible] was only Paulhan.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Mourning.

Owing to the death of King Edward VII, the [illegible] [illegible] Saturday the 28th [illegible] [illegible], [illegible].

Bournemouth Aviation Meeting.

[illegible] the [illegible] [illegible] Programme [illegible] [illegible] [illegible] [illegible] [illegible]. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Royal Aero Club [illegible] [illegible] [illegible] Fédération Aéronautique Internationale.

Hotel Accommodation.—[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] members of the Club.

Aviators' Certificates.

The Royal Aero Club of the United Kingdom will grant certificates in accordance with the rules of the Fédération Aéronautique Internationale to aviators who have complied with the following rules:—

Rules.

1. Three separate flights must be made, each of [illegible] round a circular course without coming to the ground. These flights need not be [illegible] made on the same day. On the conclusion of each flight the engine must be stopped in the air and a landing effected within [illegible] yards of a given point previously designated by the candidate to the Official Observers.

2. Each of the three trials must be vouched for by officials appointed by the Royal Aero Club, and the certificate [illegible] for each flight [illegible] [illegible] the [illegible] of such officials approved by the Royal Aero Club.

3. Before being allowed to compete for aviators' certificates, must, if called upon, satisfy the Committee of the Royal Aero Club of their ability [illegible] [illegible] yards, and of making a gliding descent with the engine stopped.

4. All attempts must be made under the control and special supervision of officials [illegible] [illegible] [illegible] [illegible] of the Royal Aero Club.

5. The Royal Aero Club declines all responsibility for any accident or damage that may occur [illegible] [illegible] [illegible] or to any third parties during or in connection with [illegible] [illegible].

6. Candidates desirous of qualifying for certificates [illegible] [illegible] [illegible] [illegible] [illegible] must be borne by the candidate.

7. The [illegible] of the Royal Aero Club will [illegible] [illegible] [illegible] candidate has qualified for a certificate [illegible] [illegible] [illegible].

8. Foreigners belonging to a country represented on the Fédération Aéronautique Internationale can only receive a certificate from the Royal Aero Club after having obtained the consent of their national [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

9. The decision of the Committee of the Royal Aero Club in all matters [illegible] [illegible] [illegible] [illegible] final and without appeal.

The Committee of the Royal Aero Club [illegible] [illegible] [illegible] [illegible] these rules and grant certificates at its discretion.

Long Distance Balloon Race.

(Cup presented by the Hon. Mrs. Assheton Harbord.)

The cup is to be competed for during the three months commencing May 15th and ending August 15th, 1910.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

Competitors [illegible] [illegible] [illegible] [illegible] [illegible] Hurlingham Club.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] passengers [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] written [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible] permitted.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [illegible] be bound by these rules [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Royal Aero Club [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

Library.

Mr. [illegible] [illegible] has presented to the Library [illegible] [illegible] [illegible] [illegible].

Aviation Lantern Slides.

The Royal Aero Club have now prepared a large collection of lantern slides dealing with [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] these slides. They include all the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] England and abroad. Applications for slides should be made to the Secretary.

HAROLD E. PERRIN,
Secretary.

166, Piccadilly.

Claude Grahame-White Testimonial Fund.

Donations received up to Thursday, May [illegible], 1910.

Amount previously acknowledged	[illegible]	Brought forward	[illegible]	Brought forward	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]		
Carried forward	[illegible]	Carried forward	[illegible]		[illegible]

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

[illegible]

Hampstead Aero Club [illegible]

[illegible]

3. [illegible]

4. [illegible] the landing place.

5. [illegible]

6. [illegible]

7. [illegible]

[illegible]

[illegible] Club [illegible]

[illegible]

Kent and Metal Aeroplane Assoc [illegible]

[illegible]

M[illegible] Aero Club [illegible]

[illegible]

[illegible] Wiener Neustadt [illegible] on Tuesday [illegible] on the Steinamanger [illegible]. After a short stop, he [illegible] to his starting point.

BRITISH NOTES OF THE WEEK

[illegible] for Aero Engines.

[illegible]

Designing and [illegible] Club for London Air Men.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Mr. MacArdle at Beaulieu.

[illegible]

A Biplane at Liverpool.

[illegible]

[illegible] Flying.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

* * *

FOREIGN AVIATION AND AIRSHIP NEWS.

A New Passenger Record.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

The Voisin School. [illegible]

The Antoinette School. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

A Biplane at Chartres.

[illegible]

[illegible]

An Aerial Circuit Race.

[illegible]

A New French Association.

[illegible]

Chinese Mission at Issy.

[illegible] M. Latham made a flight [illegible]

Rougier to Retire by Flying.

According [illegible]

Three on a Monoplane.

[illegible] carried [illegible] passengers [illegible]

[illegible] Flying [illegible]

[illegible]

the Sommer machine. [illegible] splendid flights [illegible]

[illegible] at Pau.

[illegible]

Aeroplane Factory at Turin.

[illegible] of aeroplanes. A group of capitalists [illegible] of ground [illegible] for the factory.

Exhibition on a Warship.

[illegible] models [illegible] kites and balloons, [illegible]

Flying over Sedan.

[illegible] M. Sommer [illegible] Sedan [illegible]

Wright Brothers to Fly Across Country.

According [illegible] Wright Brothers [illegible] from Dayton to Chicago [illegible]

M. Cl[illegible] on the "bridge" of the "Clément-Bayard No. 2," which [illegible] London.

Flying Progress in India.

From a Madras correspondent we learn that, though there are several aeroplanes in India, no one has yet made a mechanical flight. Mr. De [illegible], of Calcutta, succeeded in making a petrol engine [illegible] several hundred feet, and he is now [illegible] an engine for a full size machine. Others have also made gliding experiments with [illegible] of machines. [illegible] resulted in a [illegible].

Signor Macagno, who now has a full-size aeroplane waiting for engine, says that he has glided several miles by means of planes mounted on a cycle, the whole being propelled by a pedal-driven screw.

Our correspondent adds: "If my [illegible] and [illegible] I stand a very good chance of being the first to make a really mechanical flight in India, and you may understand that I am very keen on making one."

"Clement-Bayard" Out Again.

On Wednesday of last week the new "Clement-Bayard" airship was taken out for another trial trip. [illegible] M. Clement experienced [illegible] in [illegible] figure, but [illegible] every movement of the helm quite readily. Unfortunately, a too sudden landing was made, with the result that the framework of the car was damaged rather seriously, which meant that the airship would have to remain in sheds for some days.

"Ville de Pau" Returns to Paris.

As Pau is now practically deserted, the Astra dirigible "Ville de Pau" has been packed up and returned to Paris, where it will be kept until next spring.

Six Hours Cruise in the [illegible] Airship.

On the [illegible] Col. Klaus piloted the [illegible] on a long [illegible]. Starting from its shed at [illegible] the vessel was directed [illegible] and there manoeuvred [illegible]. [illegible] compelled the airship to land at [illegible] of [illegible] directly into the [illegible] and [illegible] in the [illegible] of six hours.

* * * *

CORRESPONDENCE.

**** *The name and address of the writer (not necessarily for publication) must in all cases accompany letters intended for insertion, or containing queries.*

Correspondents asking questions relating to articles which they have read in FLIGHT, would much facilitate our work of reference by giving the number of the letter.

NOTE.—*Owing to the great mass of valuable and interesting correspondence which we receive, immediate insertion is impossible, but each letter will appear practically in rotation and at the earliest possible moment.*

THE DIHEDRAL ANGLE.

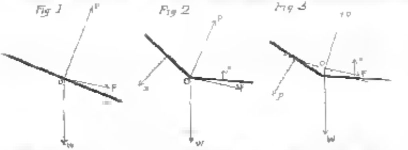
[1095] Many [illegible] the [illegible] [illegible] as it was present [illegible] I [illegible] of an old [illegible] showing the [illegible] the [illegible] I [illegible] flight.

However [illegible]

[illegible] of [illegible] [illegible] which [illegible] the [illegible] [illegible] of [illegible] [illegible].

[illegible]

[illegible]



[illegible] as [illegible] of the truth of my theory [illegible]. I think I may be excused for [illegible].

Considering any aeroplane in flight, the only forces acting in a plane perpendicular to the line of flight are the weight W and the resultant air pressure, P (see figures), which must be equal [illegible] they normally balance the machine. In straight planes P [illegible] always at right angles to [illegible] through the middle [illegible] (Fig. 1), but with a dihedral angle it must act along the bisector of the angle (Fig. 2) for reasons of symmetry. When either aeroplane [illegible] P and W [illegible] produce a resultant F bisecting the angle between them. This force produces lateral motion, leading slightly downwards. One needs no knowledge of mechanics to see the production of this motion, as the aeroplane moves sideways, [illegible] a glider moves forward. If the centre of gravity is below the [illegible] in either type of aeroplane F will, with the lateral resistance, have a righting couple [illegible] by the dihedral angle, for if the centre of gravity, G, [illegible] level with that of [illegible] value, [illegible] the machine describes [illegible] [illegible] will describe a sort of circle, [illegible] explained.

With regard to theories based on the tilt of the aeroplane [illegible] force very small [illegible] force, and so those righting effects are negligible compared to the [illegible] given above. In the [illegible] which [illegible] of [illegible] practical value.

Dihedral planes are slightly [illegible] however [illegible] spread [illegible] from [illegible] [illegible] power [illegible].

Y[illegible] B. [illegible]

VACUUM DIRIGIBLES.

[1096] Here is a little problem which I think may interest your readers, particularly those with mathematical [illegible]. Suppose

[illegible]

[illegible]

THE SKIDS AND OTHER FEATURES OF THE [illegible]

[illegible]

NAME [illegible] WANTED

[illegible]

TESTING [illegible]

[illegible]

STARTING OF MONOPLANES AND PROPELLER [illegible]

[illegible]

[illegible]

We must thank [illegible] for this important discovery, then in the near future we shall [illegible] the dragon [illegible] war by aeroplanes.

[illegible] Englishman and a Frenchman, [illegible]

[illegible] Spain, [illegible]

Apologising for taking up so much valuable space, and wishing your paper every success.

Madrid. [illegible]

[illegible] a high velocity [illegible] the ground [illegible] starting [illegible] type [illegible]

[illegible] propeller, which has always been [illegible] the pilot does not appear [illegible] propeller, [illegible] ED.

FLAPPING-WING MACHINES.

[illegible] although [illegible] experimenting [illegible] the light and [illegible] necessary [illegible] successful flying [illegible] heavier.

[illegible]

[illegible] the early stage of the movement, instead of [illegible] more surfaces.

[illegible] W. [illegible]

THE DAY MONOPLANE.

[illegible] and the towns [illegible] of each planes [illegible] But what [illegible] something [illegible] one of the [illegible] of aeroplanes [illegible]

passage through the air. [illegible] be altered [illegible] high speeds [illegible] fittings and [illegible] at present.

[illegible]

STATASCOPES.

[illegible] is absolutely [illegible] The only [illegible] the character of the oil or liquid employed [illegible] temperature [illegible] against [illegible] the indication of [illegible]

I [illegible] perhaps [illegible] interesting paper.

[illegible]

MR. GRAHAME WHITE'S FLIGHT.

[illegible] your [illegible] on the [illegible] damage to the machine, and [illegible] responsible for what [illegible]

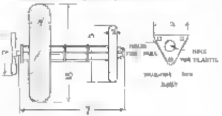
[illegible]

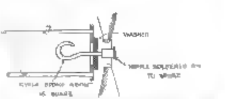
MODELS.

DESIGN FOR A MODEL.

[illegible] model [illegible]

The [illegible]





glass-papered [illegible] plate

requires to be inclined slightly upwards. If the propeller [illegible] a small angle is required. [illegible] my [illegible] model [illegible]

Could [illegible] Nos. 4 and [illegible] Company. [illegible]

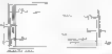
GEARED PROPELLERS.

[illegible] I am extremely obliged for your [illegible] assistance and [illegible] that my question from [illegible] on the [illegible] of [illegible] should have brought forth a good [illegible] of the propeller.

[illegible] the propeller running [illegible] the Wright [illegible]

The arrangement [illegible] and [illegible] [illegible] with differential drive [illegible]

The [illegible]



[illegible]

[illegible]

THE RIDLEY MODEL.

[illegible] the Wright [illegible] [illegible] of [illegible]

[illegible]

⁂

[illegible] Air Case.

[illegible] manufacture [illegible] [illegible] particulars [illegible]

⁂

NEW COMPANY REGISTERED.

Midlands Aviation Synd. Ltd. [illegible]

[illegible]

[illegible] Ltd. [illegible]

[illegible]

⁂

PUBLICATIONS RECEIVED.

[illegible]

[illegible] London [illegible]

Aeronautical Patents Published.

Published May [illegible], 1910.

[illegible] Flying machines.
[illegible] Aerial navigation.
[illegible] Aeroplanes.
[illegible]

DIARY OF FORTHCOMING EVENTS.

British Events.

1910.

June [illegible] Model Aeroplane [illegible]
June [illegible]
July [illegible] Lanark [illegible] Wolverhampton
July [illegible]
Aug. [illegible] Lanark
[illegible] Kite and Model Aeroplane Assn.
[illegible]

Foreign Events.

1910.

[illegible] Belgium
[illegible]
Sept. [illegible]
Sept. [illegible] Milan
Oct. [illegible] America [illegible] Gordon Bennett Aviation Race

[illegible]

BACK NUMBERS OF "FLIGHT."

Several back numbers have been very scarce, and these [illegible]:

1909.				s.	d.
[illegible]			Table of Propellers [illegible]	[illegible]	[illegible]
[illegible]			How Men Fly [illegible]		[illegible]
			[illegible] Bibliography.		
			Wright [illegible] Patents.		
[illegible]			[illegible]		[illegible]
[illegible]			[illegible] of Flying.		[illegible]
			[illegible]		
			Military Aeronautics.		
[illegible]			[illegible] Supplement.	1	[illegible]
[illegible]			[illegible] at Olympia.		[illegible]
[illegible]			[illegible]	1	6
			Models at Olympia.		
[illegible] July			[illegible] Flyer [illegible]	[illegible]	[illegible]
			(Full page diagram.)		

Other back numbers (excepting Nos. [illegible] and 4, [illegible] including descriptions and scale drawings of the [illegible] (Nos. [illegible] and 54), Curtiss (No. [illegible]), Cody (No. [illegible]), Farman (No. 42), and Wright (No. [illegible]) biplanes, the Santos Dumont (No. [illegible]), [illegible] (Nos. [illegible] and 44), and [illegible] (No. [illegible]) monoplanes, and [illegible] Wright glider (No. [illegible]).

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6 " " ...	[illegible]	[illegible]	6 " "	[illegible]	[illegible]
12 " " ...	[illegible]	[illegible]	12 " "	[illegible]	[illegible]

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